We claim:

1. A method for stimulating angiogenesis within a muscle, comprising

employing a delivery system for accessing the muscle,

penetrating the muscle, and

operating the delivery system for enclosing within the muscle at least one body formed of a biocompatible material and dimensionally adapted for being enclosed within the muscle.

2. A method according to claim 1, wherein employing a delivery system includes employing a catheter delivery system.

3. A method according to claim 1, wherein employing a delivery system for accessing the muscle includes

guiding a catheter delivery system through a patient's vascular system.

4. A method according to claim 1, wherein penetrating the muscle includes penetrating a muscle comprising the myocardial wall of a heart.

5. A method according to claim 1, wherein penetrating the muscle includes driving a distal portion of the delivery system into the muscle.

6. A method according to claim 1, wherein penetrating the muscle includes driving the at least one body into the muscle.

7. A method according to claim 1, wherein operating the delivery system includes operating a delivery system that substantially seals the at least one body within the muscle.

8. A method according to claim 1, wherein operating the delivery system for enclosing at least one body within the muscle includes implanting a plurality of bodies within the muscle.

9. A method according to claim 1, wherein operating the delivery system for disposing at least one body within the muscle includes implanting at least one body adapted for promoting blood pooling within the muscle.

10. A method according to claim 1, wherein operating the delivery system includes operating the delivery system for delivering into the muscle an agent for promoting angiogenesis.

11. A method for stimulating angiogenesis within the tissue of a muscle, comprising:

accessing the muscle with a delivery system,

penetrating the muscle, and

releasing within the muscle at least one body formed of a biocompatible material and dimensionally adapted for being enclosed within the muscle, said biocompatible material being capable of inciting an inflammatory reaction within the tissue of the muscle.

12. A method for promoting angiogenesis within the tissue of a muscle, comprising:

accessing the muscle with a delivery system,

penetrating the muscle,

releasing within the muscle at least one flexible body dimensionally adapted for implantation within the muscle, said body having been subjected to deforming stress prior to its release within the muscle and said body dynamically approximating the recovery of its native configuration after its implantation, and

withdrawing the delivery system from its proximity to the muscle.

13. A method for promoting angiogenesis within the tissue of a muscle, comprising:

accessing the muscle with a delivery system,

penetrating the muscle,

releasing within the muscle a body formed of a heat responsive material, said body undergoing dimensional change upon exposure to intramuscular heat, and

withdrawing the delivery system from its proximity to the muscle.

14. A kit for promoting angiogenesis within a muscle comprising:

a delivery system for accessing the muscle,

an implantable body dimensionally adapted for being enclosed within the tissues of the muscle, and

an implantation device capable of inserting the implantable body within the muscle,

whereby the placement of the implantable body within the tissues of the muscle promotes angiogenesis.

15. Apparatus for promoting angiogenesis comprising:

a body formed of a biocompatible material and being dimensionally adapted for implantation within tissues of a muscle, said body having at least one surface carrying a substance capable of promoting localized angiogenesis.

16. Apparatus according to claim 15, wherein said at least one surface is coated with a drug releasing compound.

17. Apparatus according to claim 15, wherein said at least one surface is formed of a biocompatible material that includes at least one drug releasing compound.

18. Apparatus according to claim 15, wherein said body encloses a reservoir containing at least one drug releasing compound, and said body being formed of a biocompatible material permeable to said drug releasing compound.

19. Apparatus according to claim 15, wherein said body has affixed to at least one surface a radiation source.

20. Apparatus according to claim 15, wherein said body contains a radiation source.

21. Apparatus according to claim 15, wherein said biocompatible material comprises at least one radiation source.

22. Apparatus for promoting angiogenesis, comprising:

a body formed of a biocompatible material and being dimensionally adapted for implantation within tissue of a muscle, wherein said body provides at least one surface which causes blood pooling adjacent to said body to thereby stimulate angiogenesis.

23. Apparatus according to claim 22, wherein said surface includes a concavity to provide a nucleation site for thrombus formation.

24. Apparatus according to claim 22, wherein said surface includes a projection adapted for impeding muscular motion and thereby creating intramuscular cavities for blood pooling.

25. Apparatus according to claim 22, wherein said body comprises a flexible structure.

26. Apparatus according to claim 25, wherein said flexible structure includes a spring.

27. Apparatus according to claim 25, wherein said flexible structure is configured as a bellows for expanding and contracting responsive to muscle relaxation and contraction.

28. Apparatus according to claim 22, wherein said body comprises a thermal shape memory material.

29. Apparatus according to claim 22, wherein said body comprises a rigid material.

30. Apparatus for promoting angiogenesis, comprising:

a body formed of a biocompatible material and being dimensionally adapted for implantation within the tissue of a muscle, said body being configured as a scaffold that provides

support for tissue ingrowth, whereby said body promotes tissue ingrowth to thereby stimulate angiogenesis.

31. Apparatus according to claim 30, wherein said body comprises at least one tissue growth factor.

32. Apparatus according to claim 30, wherein said body has channels extending therethrough for providing the scaffold that provides support for tissue ingrowth.